DOCUMENT RESUME

ED 115 798 95 CE 005 621

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TITLE	An Empirical Determination of Tasks Essential to Successful Performance as a Grain Farmer. Determination of a Common Core of Basic Skills in Agribusiness and Natural Resources.
INSTITUTION	Ohio State Univ., Columbus. Dept. of Agricultural Education.; Ohio State Univ., Columbus. Research Foundation.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
BUREAU NO	V0033VZ
PUB DATE	75
GRANT	OEG-0-74-1716
NOTE	25p.; For an explanation of the project, see CE 005 614-615, and for the other occupations, see CE 005 616-643
EDRS PRICE	MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS	Agricultural Education; Agricultural Occupations; *Agricultural Production; Agricultural Skills; Farmers; Farm Occupations; *Grains (Food); Job Analysis; *Job Skills; *Occupational Information; Occupational Surveys; Tables (Data); *Task Analysis; Vocational Education

ABSTRACT

To improve vocational educational programs in agriculture, occupational information on a common core of basic skills within the occupational area of the grain farmer is presented in the revised task inventory survey. The purpose of the occupational survey was to identify a common core of basic skills which are performed and are essential for success in the occupation. Objectives were accomplished by constructing an initial task inventory to identify duty areas and task statements for the occupation. The initial task inventory was reviewed by consultants in the field, and 248 tasks were identified. A random sample of 75 grain farmers based on the 1974-75 Ohio Young Farmers Association, Inc. was obtained. Data were collected utilizing a questionnaire. Thirty-eight questionnaires were returned of which 32 were usable. A compilation of basic sample background information is presented on the size and type of grain farm, years as a grain farmer, and preparation as a grain farmer. A compilation of duty areas of work performed and work essential for the occupation is given. Percentage performance by incumbent workers and the average level of importance of specific task statements are presented in tabular form. (Author/EC)

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ED115798

DETERMINATION OF A COMMON CORE
OF BASIC SKILLS IN AGRIBUSINESS
AND NATURAL RESOURCES

An Emperical Determination Of Tasks Essential To Successful Performance As A Grain Farmer

DEPARTMENT OF AGRICULTURAL
EDUCATION
THE OHIO STATE UNIVERSITY
COLUMBUS, OHIO 43210

CE005621

AN EMPERICAL DETERMINATION OF TASKS ESSENTIAL TO SUCCESSFUL PERFORMANCE AS A GRAIN FARMER

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1975

PREPARED AS APPENDIX V

Of a Final Report

On A Project Conducted Under

Project No. V0033VZ

Grant No. OEG-0-74-1716

This publication was prepared pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Office of Education position or policy.

U.S. Department of Health, Education and Welfare
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FOREWORD

The Department of Agricultural Education at The Ohio State University is involved in a major programmatic effort to improve the curricula in education programs in agriculture. One product in this effort is this report of the grain farmer task inventory survey. The data reported were collected as part of a more comprehensive thrust designed to develop a common core of basis skills in agribusiness and natural resources.

It is hoped that the revised task inventory contained in this report will be useful to curriculum developers working for improved occupational relevance in schools. Twenty-seven additional inventories in other occupational areas are also reported from this project.

The profession owes its thanks to J. Rick Byrd, graduate research associate, for his work in preparing this report. Special appreciation is also expressed to Richard Hummel, Executive Vice-President and Treasurer, Ohio Young Farmers Association, Inc. and Area Supervisor of Vocational Education in Agriculture in Ohio, for his input and help in securing the cooperation of grain farmers across Ohio.

J. David McCracken
Project Director

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INTRODUCTION

Occupational information is needed to develop and revise vocational and technical education curricula. Teachers and curriculum developers generally determine which skills might be taught in a program based upon teacher expertise, advisory committee input, informal and formal community surveys, and/or task inventories.

The Agricultural Education Department at The Ohio State University has utilized and revised a system for obtaining and using occupational information as an effective aid in planning, improving, and updating occupational education curricula. This report presents the results of a survey of the occupation, grain farmer. The information contained herein may be used by curriculum development specialists, teachers, local and state administrators, and others involved in planning and conducting vocational and technical programs in agriculture.

Purpose and Objectives

The major purpose of the occupational survey was to identify the skills which are performed and essential for success as a grain farmer. The specific objectives of this survey were as follows:

1. Develop and validate an initial task inventory for the grain farmer.
2. Identify the specific tasks performed by the grain farmer.
3. Determine the relative importance of the specific tasks to successful employment as a grain farmer.

Definition of the Occupational Area

The grain farmer usually receives a major portion of his farm income from the sale of grains. The particular grain or grains grown on the farm will depend on the locality. The specific duties performed in relation to the grain enterprise may include testing soil and plant tissues; fertilizing grain crops; controlling insects and diseases; controlling weeds; establishing grain crops; harvesting grain crops; storing grain; and marketing grains through proper channels.

The grain farmer also has a large investment in buildings, equipment, and machinery. The grain farmer will operate machinery and equipment and service and maintain such equipment and machinery. The grain farmer will also be involved in minor building construction and repair and maintain the buildings and structures.

METHODOLOGY

Objectives were accomplished by constructing an initial task inventory, validating the initial inventory, selecting a sample of workers, collecting data, and analyzing data.

Initial Task Inventory

Duty areas and task statements for the grain farmer were identified by searching existing task lists, job descriptions, curriculum guides, and reference publications. Additionally, contacts with several grain farmers aided in clarifying the specific responsibilities of the grain farmer. All the tasks that the project staff thought to be performed were assembled into one composite list.

The initial tasks were grouped into functional areas called "Duties".

After the task statements were grouped under the proper duty areas, each task statement was reviewed for brevity, clarity, and consistency. In all, 317 task statements were included in the initial task inventory.

Initial Inventory Validation

After the initial task inventory was constructed, it was reviewed by thirteen grain farmers.

The grain farmers were asked to respond to the initial task list inventory by performing the following activities:

1. Indicate whether any of the tasks listed were not appropriate.

2. Add any additional tasks they believed were performed by the grain farmer.

3. Make changes in the wording of tasks to help add clarity to the statements.

The comments from the thirteen grain farmers were pooled and needed revisions were made. One new duty area was added as a result of the review process. The duty areas relating to the overall management of a grain farm which were not unique to the grain enterprise but common to several production agriculture occupations were removed from the grain farmer questionnaire and incorporated into a separate farm manager (owner-operator) questionnaire

As a result of the initial task inventory review process, 248 tasks were identified.

Worker Sample Selection

An attempt was made to survey grain farmers from all areas of the state with various size grain operations. A sample of 75 grain farmers was obtained from the 1974-75 directory of the Ohio Young Farmers Association, Inc. using a multi-stage random sampling approach. The stages used in the sampling approach were local Ohio Young Farmer Association, Inc. chapter and individual member.

Data Collection

A packet of materials was sent to the randomly selected grain farmers. The packet of materials included:

1. A cover letter from the Ohio Young Farmers Association, Inc.

2. A questionnaire printed on yellow.

3. A stamped and self addressed return envelope.

The grain farmers were instructed to complete the questionnaire and return it in the stamped and self-addressed return envelope by the date specified in the cover letter.

A follow-up of non-respondents consisted of mailing a packet of materials two weeks after the initial mailing. The follow-up consisted of a packet of materials identical to the initial packet except that a cover letter on Ohio State University stationery replaced the cover letter on Ohio Young Farmer Accociation, Inc. stationery.

Data Analysis

The 38 questionnaires which were returned were checked for completeness and accuracy by the project staff. Information from the 32 usable responses was coded on Fortran coding sheets for key punching. In addition to coding appropriate respondent background information, each specific task statement was coded as to whether it was performed (1 = Task performed by respondent; blank = Task not performed by respondent) and the level of importance of the task (3 = Essential; 2 = Useful; 1 = Not Important). The information was keypunched on IBM cards and verified by personnel at the Instruction and Research Computer Center at The Ohio State University.

The data was analyzed using the SOUPAC computer program and the facilities of the Instruction and Research Computer Center. Consultant assistance for analyzing the data was proviced by personnel at The Center for Vocational Education. The SOUPAC computer analysis resulted in the computation of relative frequencies, means, and rankings for each task statement. The results of the computer analyses were printed in tabular form for ease of interpretation.

FINDINGS

Objectives of the study resulted in the compilation of basic sample background information, the determination of tasks performed

by the grain farmer, and the identification of tasks essential to successful performance as a grain farmer.

Description of the Sample

Information regarding the performance of tasks and the importance of the tasks to successful employment as a grain farmer was obtained from grain farmers across Ohio.

Response to the Survey

A total of 75 questionnaires were mailed and 38 replies were received. This represented a 50.6% rate of return. The response to the questionnaire is summarized in TABLE I.

TABLE I

GRAIN FARMER RESPONSE TO THE QUESTIONNAIRE

	N	Percent of All Farmers In the Survey
Grain Farmers in Survey	75	100.0
Total Returns	38	50.6
Usable Returns	32	42.6
Unusable Returns	6	8.0
Nonrespondents	37	49.4

Size and Type of Grain Farm

Grain farmers from various size grain farms were included in the study. The number of acres in grain production was used as an index to assess the size of the grain operation. Of the 38 questionnaires received, 32 included information regarding the size of the grain operations. TABLE II summarizes the responses to the question, "How many acres do you currently have in grain production?" Twelve grain farmers or 37.5% operated farms with 401-600 acres in grain production. Eight grain farmers or 25% operated farms with 201-400 acres in grain production. Seven grain farmers or 21.8% operated farms with 801 or more acres in grain production. The number of acres in grain production ranged from 114-1100 acres. The mean number of acres in grain production per farm was 536 acres.

The thirty-two grain farmers produced several kinds of grains for sale. Thirty grain farmers or 93.8% raised corn on their farm. Thirty grain farmers or 93.8% raised soybeans on their farm. Twenty-seven grain farmers or 84.4% raised wheat on their farm. An analysis of TABEL III reveals that the thirty-two grain farmers responding to the survey often raised several kinds of grain crops on their farms.

TABLE II

SIZE OF OPERATION

(Acres in Grain Production)

Acres	N	Percent of Respondents
0-200	3	9.4
201-400	8	25.0
401-600	12	37.5
601-800	2	6.3
801 or more	7	21.8
Total	32	100.0

$\bar{X}$ number of acres in grain production = 536.0

TABLE III

KIND OF GRAIN PRODUCED

Kind of Grain	N	Percent of Respondents
Corn	30	93.8
Wheat	27	84.4
Soybeans	30	93.8
Oats	6	18.8

Years as a Grain Farmer

Grain farmers with varying amounts of experience in grain farming were included in the study. TABLE IV summarizes the responses to the question, "How many total years have you been a grain farmer?" Nine grain farmers or 28.1% had been grain farmers from 11-15 years. Eight grain farmers or 25% had been grain farmers from six to 10 years. Seven grain farmers or 21.9% had been grain farmers from 16-20 years. The years of experience as a grain farmer ranged from 2-40 years with a mean of 14.1 years.

TABLE IV

TOTAL AMOUNT OF WORK EXPERIENCE IN GRAIN FARMING

Years	N	Percent of Respondents
1-5	4	12.5
6-10	8	25.0
11-15	9	28.1
16-20	7	21.9
21 or more	4	12.5
Total	32	100.0

$\bar{X}$ years as a grain farmer = 14.1

Preparation as a Grain Farmer

Grain farmers obtained training for their job from various sources. TABLE V summarizes their responses to the question, "Where did you receive your training as a grain farmer?" Thirty grain farmers or 93.8% indicated they received training on-the-job. Twenty-six grain farmers or 81.3% indicated they had received training as a grain farmer by attending a high school program. Nineteen grain farmers or 59.4% indicated they obtained training as a grain farmer by attending adult education courses.

Duty Areas of Work Performed by the Grain Farmer

The 248 tasks were grouped under 15 duty areas. Each respondent indicated whether he performed the specific task in his current position as a grain farmer. The percentages of respondents performing each task were averaged for all tasks under each

TABLE V

SOURCE OF TRAINING RECEIVED AS A GRAIN FARMER

Source	N	Percent of All Employees In the Survey
On-The-Job	30	93.8
High School Program	26	81.3
Technical School Program	2	6.3
College/University Program	3	9.4
Adult Education Program	19	59.4
Other	6	18.8

duty area. The mean percentage of grain farmers who performed specific tasks in specified duty areas is presented in TABLE VI.

Duty areas of work in which 50% or more of the grain farmers performed the tasks were:

1. Following Legal Practices in Grain Production
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Testing Soil and Plant Tissues
6. Fertilizing Grain Crops
7. Operating Powered Equipment and Vehicles
8. Controlling Insects and Diseases
9. Controlling Weeds
10. Constructing and Maintaining Grain Operations Buildings and Structures
11. Assembling and Installing Grain Operations Equipment
12. Establishing Grain Crops
13. Marketing and Shipping Grain Crops
14. Harvesting Grain Crops
15. Storing Grain Crops

Duty Areas of Work Essential for Successful Performance as a Grain Farmer

A level of importance rating was obtained for each task. The respondent could rate the task as essential, useful, or not important for successful performance as a grain farmer. A ranking of essential was assigned a numerical rating of "3", useful a numerical rating of "2", and not important a numerical rating of "1". The level of importance ratings for each task

were averaged for all tasks under each duty area. The average level of importance ratings for the specific tasks in the specified duty areas are presented in TABLE VI.

Duty areas of work which received a 2.0 or higher level of importance rating by incumbent workers were:

1. Following Legal Practices in Grain Production
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Testing Soil and Plant Tissues
6. Fertilizing Grain Crops
7. Operating Powered Equipment and Vehicles
8. Controlling Insects and Diseases
9. Controlling Weeds
10. Constructing and Maintaining Grain Operations Buildings and Structures
11. Assembling and Installing Grain Operations Equipment
12. Establishing Grain Crops
13. Marketing and Shipping Grain Crops
14. Harvesting Grain Crops
15. Storing Grain Crops

Percentage Performance and Level of Importance Ratings of Specific Tasks

The percentage performance by incumbent workers and the level of importance for each specific task is also presented in TABLE VI.

It is recommended that the results for each specific task be examined by educators and others who are developing educational programs to determine curriculum content for preparing grain farmers. Specific tasks with a high level of performance and a high level of importance rating should be given more emphasis in the educational progrm than specific tasks with a low level of performance and a low level of importance rating.

TABLE VI

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE* OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Following Legal Practices in Grain Production		
Follow laws relating to chemical use	90	2.7
Follow laws regarding application of chemicals near specific locations	78	2.7
Identify government regulations regarding marketing of grain products	59	1.9
Mean Rating	75.7	2.4
Following General Safety Precautions		
Follow safe work habits	96	2.7
Identify potential safety hazards	87	2.7
Store chemicals	87	2.8
Use fire extinguishers	78	2.7
Wear appropriate protective clothing	65	2.4
Ventilate work areas	71	2.4
Interpret information on labels and signs	87	2.8
Use proper lifting and carrying methods	87	2.5
Store inflammable materials	81	2.6
Wear appropriate work clothing	81	2.5
Destroy chemical containers	62	2.3
Adjust safety devices	81	2.6
Install safety devices	71	2.5
Determine when climatic conditions provide unsafe work situations	68	2.4
Correct potential safety hazards	84	2.6
Remove debris from work areas	81	2.3
Use electrical connectors and safety devices	75	2.6
Dispose of excess chemicals	71	2.3
Clean up chemical spills	75	2.4
Recognize symptoms of injury or poison from chemicals	65	2.8
Mean Rating	77.7	2.5
Maintaining Equipment and Vehicles		
Add coolant to radiators	100	2.9
Add oil to equipment	100	2.9

*Average rating of importance may range from 1-3 with 3 being the highest

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Adjust carburetors	84	2.4
Adjust clutch pedal free travel	93	2.6
Bleed diesel fuel system	93	2.7
Change oil and oil filters	100	2.9
Change thermostats	87	2.3
Clean debris from equipment	93	2.5
Grease equipment	100	2.8
Inflate tires	100	2.8
Inspect cooling system for leaks	100	2.6
Install and adjust belts	100	2.8
Install and adjust chains	96	2.8
Install and service battery	100	2.7
Interpret general maintenance instructions in equipment operator's manual	96	2.7
Remove equipment from storage	93	2.5
Repack bearings	96	2.6
Replace and adjust spark plugs	93	2.6
Replace bearings and seals	100	2.8
Replace diesel fuel nozzles	56	2.3
Replace spark plug wires	90	2.4
Replace radiator hoses	96	2.5
Replace universal joints	84	2.4
Service air cleaners	100	2.8
Service fuel strainer, fuel filters, and sediment bowl on gas fuel system	100	2.8
Time engine	53	2.3
Prepare equipment for storage	90	2.5
Mean Rating	92.3	2.6
Using and Maintaining Hand and Power Tools		
Adjust tools	90	2.6
Clean tools	100	2.7
Identify tools	93	2.5
Interpret tool operation instructions	96	2.5
Recondition tools	65	2.3
Select tools for specific jobs	96	2.7
Sharpen tools	81	2.6
Store tools	93	2.5

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Use hand tools safely	96	2.7
Use power tools safely	100	2.8
Set up tools	75	2.3
Mean Rating	89.5	2.6
Testing Soil and Plant Tissues		
Interpret plant tissue test results	43	2.3
Interpret soil test results and recommendations	87	2.5
Prepare forms to submit with plant tissues	40	2.0
Prepare forms to submit with soil sample	59	2.3
Prepare plant tissues to be submitted	43	2.0
Prepare soil to be submitted	71	2.4
Take representative soil sample	81	2.6
Mean Rating	60.6	2.3
Fertilizing Grain Crops		
Calculate estimated costs of fertilizer and lime needed	80	2.6
Determine amount of fertilizer and lime to apply	83	2.7
Determine kind of fertilizer and lime to apply	83	2.8
Determine when to apply fertilizer and lime	87	2.6
Evaluate affect leaching and placement have on nutrient availability	61	2.4
Evaluate influence soil pH has on nutrient availability	64	2.6
Identify function of lime in crop production	70	2.5
Identify function of major nutrients in crop production	70	2.6
Identify function of micro nutrients in crop production	58	2.4
Identify nutrient deficiency symptoms in crops	64	2.4
Use soil test results to plan fertility programs	100	2.8
Interpret labels on fertilizer bags	87	2.6
Apply fertilizers in liquid form	74	2.1
Apply fertilizers in dry form	96	2.3
Mix fertilizer solutions	35	1.8
Interpret manufacturer's fertilization rate charts	64	2.4
Evaluate influence nutrients have on plant growth	67	2.4
Determine the nutrient requirements of crops	74	2.7
Select proper method to apply fertilizer	96	2.7

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate factors that influence effectiveness of fertilizers	77	2.6
Calibrate fertilizer equipment	90	2.8
Adjust rates of fertilizer application for specific conditions	93	2.7
Recognize signs of fertilizer injury	77	2.5
Transfer NH_3 from nurse tank to applicator	74	2.3
Transfer liquid fertilizer from nurse tank	77	2.3
Identify factors that influence fertilizer requirements	83	2.5
Apply fertilizers in gaseous form	61	1.9
Mean Rating	75.7	2.5
Operating Powered Equipment and Vehicles		
Interpret gauge readings on equipment	100	2.9
Operate equipment and vehicles on public highways	100	2.6
Add wheel and front end weights	96	2.5
Adjust equipment safety shields	96	2.6
Connect front end operated equipment	93	2.3
Connect hydraulic systems and hydraulic operated equipment	96	2.5
Correct potential equipment safety hazards	93	2.5
Connect 3-point hitch equipment	93	2.5
Hitch towed equipment	100	2.5
Identify equipment safety hazards	87	2.5
Install safety shields and safety devices	90	2.5
Interpret hand operating signals	87	2.3
Interpret safety and operating instructions in operator's manuals	93	2.6
Interpret safety symbols on equipment	87	2.4
Operate equipment under field conditions	100	2.6
Refuel power units	96	2.5
Use appropriate equipment and vehicles for specific jobs	93	2.7
Mean Rating	94.1	2.7
Controlling Insects and Diseases		
Apply chemicals in liquid form	81	2.5
Apply chemicals in dust form	50	2.2

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Determine amount of chemical to apply	81	2.8
Determine when to apply chemicals	87	2.8
Evaluate influence of diseases and pests on crop production	75	2.6
Evaluate life cycle of insects to determine appropriate control procedures	40	2.2
Identify common diseases	65	2.4
Identify common insects	68	2.4
Identify damage caused by insects and diseases	84	2.4
Identify disease and insect resistant varieties to plant	75	2.5
Identify various means by which disease and insects are spread	62	2
Mix chemicals	87	2.6
Select appropriate chemicals to control various insect pests and diseases	84	2.7
Use appropriate method to apply chemicals	87	2.7
Use mechanical and cultural means to control insects and diseases	87	2.5
Inspect crops to determine when controls are needed	96	2.6
Distinguisn between harmful and beneficial insects	71	2.5
Contact appropriate insect and disease specialists	68	2.4
Interpret chemical labels	84	2.7
Destroy plant residues	43	1.9
Identify factors that influence chemical effectiveness	81	2.4
Calculate costs of controls	84	2.6
Recognize chemical injury to plants	87	2.8
Select correct field travel and PTO speed for applying chemicals	90	2.9
Calibrate application equipment	93	2.9
Select correct type and size nozzles and tips	87	2.9
Adjust applicating equipment	93	2.9
Select proper application pressure	87	2.9
Determine total amount of chemical needed	93	2.9
Interpret chemical compatability charts	78	2.5
Mean Rating	78.3	2.6
Controlling Weeds		
Apply chemicals to control weeds	93	2.9

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate influence weeds have on crops	96	2.8
Identify common weeds	96	2.8
Inspect fields to determine when weed infestations require control	96	2.8
Evaluate life cycle of weed plants to determine proper control procedures	84	2.6
Evaluate influence cultivation has on yields, soil temperature, and soil moisture	93	2.7
Mean Rating	93.0	2.8
Constructing and Maintaining Grain Operations Buildings and Structures		
Apply wood and metal preservatives	84	2.5
Clean and oil electric motors on structures	87	2.7
Build and remove concrete forms	84	2.3
Determine cost of repairs	84	2.5
Develop bill of materials needed for repairs	84	2.3
Repair and hang gates and doors	90	2.3
Install electric motors	78	2.3
Lay concrete blocks	40	1.8
Mix, pour, finish, and cure concrete	71	2.1
Read and interpret blueprints	46	2.0
Install and repair bracing in buildings and structures	81	2.3
Repair electrical cords and broken wires	93	2.5
Repair minor leaks in roof of buildings	93	2.5
Replace belts and pulleys	96	2.6
Reset circuit breakers	93	2.6
Install and replace electrical switches	87	2.4
Replace fuses	93	2.5
Replace lighting fixtures	87	2.4
Replace valves in water system	87	2.3
Replace or repair faucets	87	2.3
Replace water pipe	81	2.3
Replace window panes	75	2.3
Wire simple electrical circuit	78	2.3
Construct and repair fences and gates	87	2.3
Install and repair wood siding and panels on buildings and storage bins	87	2.2

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Repair metal structures with arc or oxyacetylene welder	81	2.3
Mean Rating	78.8	2.3
Assembling and Installing Grain Operations Equipment		
Adjust belts on equipment	93	2.7
Adjust chains on equipment	93	2.7
Adjust controls on equipment	87	2.8
Adjust safety shields on equipment	90	2.7
Check for missing equipment parts or hardware	93	2.6
Follow written assembly instructions	87	2.6
Identify hardware	67	2.4
Inspect assembled equipment for operating defects	84	2.7
Install equipment and structures in appropriate places	78	2.5
Interpret assembly diagrams	75	2.3
Interpret assembly instructions	81	2.5
Use proper tools and equipment to assemble and install equipment and structures	87	2.6
Mean Rating	84.6	2.6
Establishing Grain Crops		
Calibrate planting equipment	96	2.9
Clip grain stubble after harvesting	62	1.8
Compact seedbed after planting	43	1.6
Determine seeding rate	100	2.9
Determine when to plant	100	2.9
Evaluate advantages and disadvantages of various varieties	93	2.8
Identify grain plants	100	2.6
Identify grain seeds	100	2.7
Identify problems related to seeding failures	93	2.8
Inoculate seeds	81	2.2
Interpret information on seed tags	100	2.8
Mulch after seeding	15	1.3
Operate seeding equipment	96	2.6
Prepare seedbed	100	2.8

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Remove combined straw	53	1.7
Select proper seeding method(s)	96	2.8
Select companion grass or legume crop for grains	84	2.3
Select variety to plant	96	2.7
Determine proper planting depth	100	2.8
Cultivate grain crops	96	2.5
Evaluate advantages and disadvantages of various planting methods	93	2.7
Mean Rating	85.6	2.5
Marketing and Shipping Grain Crops		
Calculate expected returns and profits on sales	87	2.5
Classify grain for market purposes	68	2.2
Determine feasibility of feeding or selling grains	59	2.3
Determine feasibility of participating in grain futures market	56	2.2
Evaluate influence grain quality has on value	87	2.5
Inspect grain for color, maturity, and foreign matter	81	2.4
Load grain	93	2.4
Prepare carriers for hauling grain	93	2.5
Select markets	93	2.6
Prepare advertising announcements for sale of grain	12	1.4
Interpret market reports	81	2.4
Analyze market cycles	71	2.3
Select appropriate marketing system	75	2.4
Select appropriate methods of shipping	75	2.2
Identify various grades of grain	53	2.2
Determine affect middlemen and retailers have on producers' prices	68	2.5
Determine whether to hold grain for another year's income	90	2.7
Mean Rating	73.1	2.3
Harvesting Grain Crops		
Determine latest dates for harvesting	68	2.3
Determine stage of maturity	96	2.7

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate influence stage of maturity has on quality and value of grains	84	2.7
Follow weather forecasts	84	2.5
Take moisture check	96	2.[illegible]
Take yield check	81	2.[illegible]
Determine field harvesting losses	84	2.4
Cut stubble for straw	59	1.6
Bale straw	65	1.8
Combine grain crops	90	2.7
Mean Rating	80.[illegible]	2.4
Storing Grain Crops		
Control temperature and humidity in grain storage areas	65	2.6
Determine moisture content of grains	87	2.9
Determine safe moisture content for storing grains	90	2.9
Estimate amount of grains in storage	90	2.5
Estimate amount of storage space needed for grains	87	2.5
Evaluate influence moisture has on quality of grains	96	2.6
Identify storage problems that might occur	90	2.7
Load and unload straw bales	68	1.8
Remove damaged grain from storage	78	2.6
Stack straw bales	56	1.6
Unload grain wagons	93	2.5
Use grain dryer and fans	71	2.5
Use proper types of storage facilities	84	2.7
Clean storage areas	87	2.6
Mean Rating	81.6	2.5